

BMP #26 - Vegetative Buffer Strip

Targeted Pollutants

- ☒ Sediment
- ☐ Phosphorus
- ☐ Trace metals
- ☐ Bacteria
- ☐ Petroleum hydrocarbons

Physical Limits

Drainage area unlimited

Max slope 20%

Min bedrock depth 5 ft

Min water table 3 ft

SCS soil type ABCD

Freeze/Thaw fair

Drainage/Flood control no

DESCRIPTION

A vegetative buffer strip is a gently sloping area of vegetative cover that runoff water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area.

Vegetative buffer strips act as living sediment filters that intercept and detain storm water runoff. They reduce the flow and velocity of surface runoff, promote infiltration, and reduce pollutant discharge by capturing and holding sediments and other pollutants carried in the runoff water. Vegetative buffer strips function much like vegetated or grassed swales. Buffer strips, however, are fairly level and treat sheet flow across them, whereas grassed swales are indentations that treat concentrated flows running along them (see BMP #38 vegetated swale).

APPLICATIONS

- Used for temporary or permanent control, usually in conjunction with other sediment collection and slope protection practices. Consider use with level spreaders (BMP #53) or diversion measures such as earth dikes (BMP #30) and slope drains (BMP #15). Also, silt fences (BMP #25) installed upgradient can prevent overloading of the buffer strip.
- May be placed at many locations between the source of sediment (road surface, side slopes) and a natural or constructed waterway. They are inexpensive and easily constructed, and can be put into place at any time if climatic conditions allow for planting.
- May be used at almost any site that can support vegetation, but is best suited for areas where the soils are well drained or moderately well drained and where the bedrock and the water table are well below the surface.
- Provides low to moderate treatment of pollutants in storm water while providing a natural look to a site.
- Can provide habitat for wildlife.
- Can screen noise and views if trees or high shrubs are planted on the filter strips.

LIMITATIONS

- Not effective for filtering high velocity flows from large paved areas, steep slopes, or hilly areas. Consider other measures if slopes exceed 15 percent.
- Requires significant land space.

- May have a short useful life due to clogging by sediments and oil and grease.
- Do not use planted or seeded ground as a buffer strip for sediment trapping until the vegetation is well established.

DESIGN PARAMETERS

Width and length: A buffer strip must be at least 20 ft (6 meters) wide to function well. Along live streams or above wetlands, the minimum width should be 100 ft (30 meters). The length of the strip should be approximately 50 to 82 ft (15 to 25 meters). Where slopes become steeper, increase the length of the strip.

Plant materials: Tall, dense stands of grass form good sediment traps, as do willows and alder. The willows and alder can be native or planted. A combination of grasses with willows or alder is also effective. Any planted species should be deep rooted and able to adjust to low oxygen levels. Vegetative cover should be at least 75 percent to assure adequate removal of sediments. Forested strips are always preferred to vegetated strips, and existing vegetation is preferred to planted vegetation. In planning for vegetated strips, consider climatic conditions, since vegetation may not take hold in especially dry and/or cold regions.

Effectiveness: In many cases, a vegetative buffer strip will not effectively control runoff and retain sediments unless employed in conjunction with other control measures. Where heavy runoff or large volumes of sediment are expected, provide diversion measures or other filtering measures above or below the buffer strip.

CONSTRUCTION GUIDELINES

- Try to direct sediment-laden water onto naturally vegetated or stabilized planted ground.
- Fertilizing seeded or planted ground may enhance growth (and improve its effectiveness as a buffer strip).
- Do not place any equipment, construction debris, or extra soil in the buffer strip (or the strip will be damaged).

MAINTENANCE

Inspections: Inspect the buffer strip at regular intervals to ensure proper functioning. Check for damage by equipment and vehicles. In newly planted areas, check the progress of germination and plant growth, and arrange for fertilizing, if needed, to enhance growth and establishment. (Planted ground must not be used for a sediment trap until the vegetation is well established.) Make sure that water flowing through the buffer strip is not causing additional erosion nearby, and not forming ponds due to erosion within the buffer strip.

Maintenance: Buffer strips in natural vegetation do not generally require maintenance; however, on some sites it may be necessary to remove sediments and replant on a regular basis. Promptly repair any damage from equipment, vehicles, or erosion.